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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,491	09/21/2004	Arthur Rothstein	VIV/0013.02	5490

28653 7590 04/19/2007  
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EXAMINER

HOFFMAN, BRANDON S

ART UNIT	PAPER NUMBER
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2136

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/19/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

**Application No.**

10/711,491

**Applicant(s)**

ROTHSTEIN, ARTHUR

**Examiner**

Brandon S. Hoffman

**Art Unit**

2136

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-47 and 49-60 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-47 and 49-60 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Claims 1-47 and 49-60 are pending in this office action, claim 48 is canceled.
2. Applicant's arguments, filed February 2, 2007, have been considered but are moot in view of the new ground of rejection.

#### ***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claim 31 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.
5. Claim 31 disclose a system for securing a program comprised of a plurality of interoperable components, the system comprising: a module for extracting information about a function of a first component of the program that is callable by at least one other component of the program; a module for securing the extracted information; a validation module for validating authenticity of a second component attempting to invoke the function of the first component and a security module for blocking the attempt to invoke the function of the first component if the second component cannot be authenticated. Each module would reasonably be interpreted as software routines, which is a system

of software per se, and lacks the necessary physical articles or objects as components to make it a machine or manufacture. Appropriate amendment to the claim is required.

### ***Claim Rejections***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Rejections - 35 USC § 103***

7. Claims 1-19, 21-42, 45, and 49-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bodrov (U.S. Patent No. 6,802,006) in view of Ferguson (U.S. Patent No. 5,933,826).

Regarding claims 1, 12, 14, 29-31, 45, 59, and 60, Bodrov teaches a method/system/computer-readable medium for securing a program comprised of a plurality of interoperable components, the method comprising:

- Extracting **export** information about a function of a first component of the program that is callable by at least one other component of the program (fig. 3, ref. num 321 and col. 5, lines 14-18);
- Securing the extracted **export** information (fig. 5);
- In response to an attempt by a second component to invoke the function of the first component, validating authenticity of the second component (fig. 6);

- If the **authenticity of the** second component is validated, providing access to the function of the first component using the secured extracted information (fig. 6, ref. num 715); **and**
- **Otherwise, blocking the attempt by the second component to invoke the function** (fig. 6, ref. num 714).

Bodrov does not specifically teach securing the extracted information, however, Bodrov does teach extracted export information.

Ferguson teaches securing extracted information (col. 8, lines 38-48), which has been extracted as export information by Bodrov.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine securing extracted information, as taught by Ferguson, with the method of Bodrov. It would have been obvious for such modifications because securing the extracted information prevents access to the information unless permission has been given (see col. 8, lines 38-48 of Ferguson).

Regarding claims 2, 33, and 50, Bodrov as modified by Ferguson teaches further comprising generating a signature for **at least one other component of the program authorized, to call the function of the first** component, so as to enable authentication

of **said one other** component (see col. 4, lines 15-28 of Bodrov).

Regarding claims 3, 16, 34, and 51, Bodrov as modified by Ferguson teaches wherein said step of generating a signature includes generating a selected one of an Authenticode signature and an MD5 message digest (see col. 4, lines 15-28 of Bodrov).

Regarding claims 4, 17, and 35, Bodrov as modified by Ferguson teaches wherein said step of generating a signature includes generating a hash of **said one other** component and encrypting the hash with a private key (see col. 6, lines 28-40 of Bodrov).

Regarding claims 5, 18, and 36, Bodrov as modified by Ferguson teaches wherein said validating step includes decrypting the hash with a public key and comparing the hash to a known value (see col. 8, lines 58-60 of Ferguson).

Regarding claim 6, Bodrov as modified by Ferguson teaches wherein said extracting step includes **removing the export** information from an export table of the first component (see fig. 3, ref. num 321 of Bodrov).

Regarding claims 7 and 56, Bodrov as modified by Ferguson teaches wherein said extracting step includes removing the function name from an export table of the

first component (see col. 9, lines 43-50 of Ferguson).

Regarding claims 8, 42, and 57, Bodrov as modified by Ferguson teaches wherein said securing step includes obscuring the function name (see col. 9, lines 58-59 of Ferguson).

Regarding claims 9 and 58, Bodrov as modified by Ferguson teaches wherein said securing step includes creating a secure export table for securing the extracted **export** information (see col. 9, lines 15-20 of Ferguson).

Regarding claim 10, Bodrov as modified by Ferguson teaches wherein said providing step includes routing a call by the second component to the function of the first component (see col. 2, lines 6-10 of Ferguson).

Regarding claims 11, 23, 38, and 55, Bodrov as modified by Ferguson teaches wherein said extracting step includes extracting **export** information about a function of the first program specified by a user (see col. 9, lines 43-45 of Ferguson).

Regarding claim 15, Bodrov teaches a method for securing a program comprised of a plurality of modules, at least one of the modules having export information for allowing other modules to invoke its program code, the method comprising:

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- Generating signatures for at least some of the program's modules (fig. 5, ref. num 608);
- As the program is loaded, validating said signatures so as to verify authenticity of respective modules of the program (fig. 5, ref. num 618);
- For each module having program code that may be invoked by another module, removing that module's export information (fig. 3, ref. num 321 and col. 5, lines 14-18);
- Securely storing any removed export information (fig. 5);
- For each module having its export information removed, blocking any attempt from another module to invoke its program code if the other module cannot be authenticated (fig. 6, ref. num 714); and
- If the other module is authenticated, allowing the attempt to proceed using the securely stored export information (fig. 6, ref. num 715).

Bodrov does not specifically teach securing the extracted information, however, Bodrov does teach extracted export information.

Ferguson teaches securing extracted information (col. 8, lines 38-48), which has been extracted as export information by Bodrov.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine securing extracted information, as taught by Ferguson,



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with the method of Bodrov. It would have been obvious for such modifications because securing the extracted information prevents access to the information unless permission has been given (see col. 8, lines 38-48 of Ferguson).

Regarding claim 19, Bodrov as modified by Ferguson teaches further comprising providing a security module for validating authenticity of a module (see col. 8, lines 26-29 of Ferguson).

Regarding claim 21, Bodrov as modified by Ferguson teaches wherein an attempt to invoke a module having its export information removed is routed to the security module (see col. 8, lines 38-41 of Ferguson).

Regarding claim 22, Bodrov as modified by Ferguson teaches wherein the security module allows the attempt to proceed if the other module making the attempt is authenticated (see col. 8, lines 49-52 of Ferguson).

Regarding claim 24, Bodrov as modified by Ferguson teaches wherein said removing step includes removing export information for a particular module specified by a user (see col. 8, lines 57-62 of Ferguson).

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Regarding claim 25, Bodrov as modified by Ferguson teaches wherein said removing step includes removing information from an export table (see col. 9, lines 43-45 of Ferguson).

Regarding claim 26, Bodrov as modified by Ferguson teaches wherein said securely storing step includes obscuring removed export information (see col. 9, lines 58-59 of Ferguson).

Regarding claim 27, Bodrov as modified by Ferguson teaches further comprising in response to an attempt to invoke program code of a given module, verifying authenticity of the given module and blocking the attempt if the given module cannot be authenticated (see col. 8, lines 45-48 of Ferguson).

Regarding claim 28, Bodrov as modified by Ferguson teaches further comprising after allowing the attempt to proceed, providing for subsequent attempts by the other module to invoke the program code to directly invoke the program code (see col. 8, lines 49-52 of Ferguson).

Regarding claim 37, Bodrov as modified by Ferguson teaches wherein the security module routes the attempt to **invoke** the function **to** the first module **using the extracted export information** if the second module is authenticated (see col. 8, lines 37-48 and col. 10, lines 2-4 of Ferguson).

Regarding claim 39, Bodrov as modified by Ferguson teaches wherein the module for extracting removes an export table entry for the function of the first module (see col. 9, lines 43-45 of Ferguson).

Regarding claim 40, Bodrov as modified by Ferguson teaches wherein the module for securing creates a secure export table including the extracted **export** information (see col. 9, lines 15-20 of Ferguson).

Regarding claim 41, Bodrov as modified by Ferguson teaches wherein the secure export table is created without using a clear text name for the function of the first module (see fig. 3 and col. 8, lines 12-13 of Ferguson).

Regarding claim 49, Bodrov as modified by Ferguson teaches wherein said authenticating step includes authenticating the importer based on a digital signature of the importer (see fig. 6, ref. num 712 of Bodrov).

Regarding claim 52, Bodrov as modified by Ferguson teaches wherein said authenticating step includes validating digital signature of the importer (see fig. 6, ref. num 712 of Bodrov).

Regarding claim 53, Bodrov as modified by Ferguson teaches further comprising authenticating a program module including the exported function before providing access to the exported function (see fig. 6, ref. num 722 of Bodrov).

Regarding claim 54, Bodrov as modified by Ferguson teaches wherein said providing step includes routing a call by the importer to the exported function (see fig. 4 of Bodrov, External reference resolved at run-time, the import table calls upon the export table).

Claims 20, 43, 44, 46, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bodrov (USPN '006) in view of Ferguson (USPN '826), and further in view of Idoni (U.S. PG. Pub. No. 2004/0123308).

Regarding claim 20, the combination of Bodrov as modified by Ferguson teaches all the limitations of claims 15 and 19, above. However, Bodrov as modified by Ferguson does not teach the security module includes instructions causing the security module to be initialized before other modules of the programs.

Idoni teaches the security module includes instructions causing the security module to be initialized before other modules (paragraph 0008).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine initializing the security module prior to other modules, as taught by Idoni, with the method of Bodrov/Ferguson. It would have been obvious for such modifications because implicit linkage has the advantage of rapid execution since the dynamic link loader is pre-loaded into memory and statically linked references are resolved by the system when a program is loaded (see paragraph 0010 of Idoni).

Regarding claims 43 and 44, the combination of Bodrov as modified by Ferguson teaches all the limitations of claim 31, above. However, the combination of Bodrov as modified by Ferguson does not teach wherein the security module inserts executable code into the second module during initialization of the second module so as to direct an attempt by the second module to invoke the function of the first module to the security module.

Idoni teaches wherein the security module inserts executable code into the second module during initialization of the second module so as to direct an attempt by the second module to invoke the function of the first module to the security module (fig. 5 and paragraph 0031).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine inserting code to invoke functions prior to other functions, as taught by Idoni, with the method of Bodrov/Ferguson. It would have been

obvious for such modifications because implicit linkage has the advantage of rapid execution since the dynamic link loader is pre-loaded into memory and statically linked references are resolved by the system when a program is loaded (see paragraph 0010 of Idoni).

Regarding claims 46 and 47, the combination of Bodrov as modified by Ferguson teaches all the limitations of claim 45, above. However, the combination of Bodrov as modified by Ferguson does not teach the importer comprises another module or another program.

Idoni teaches wherein the importer comprises another module and wherein the importer comprises another program (fig. 1b and paragraph 0011).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine comprising another module or program, as taught by Idoni, with the method of Bodrov/Ferguson. It would have been obvious for such modifications because securing an exported function of a program to provide the advantage of both implicit and explicit linking (see paragraph 0017 of Idoni).

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandon S. Hoffman whose telephone number is 571-272-3863. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nasser G. Moazzami can be reached on 571-272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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